



## SEQUENCE LISTING

ctt tac cag ggc ccc cac aac acg ctg ttc ggc tac tcg gtc gtg ctg 192  
Page 1

## 1102-98.TXT

Leu	Tyr	Gln	Gly	Pro	His	Asn	Thr	Leu	Phe	Gly	Tyr	Ser	Val	Val	Leu	
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His	Ser	His	Gly	Ala	Asn	Arg	Trp	Leu	Leu	Val	Gly	Ala	Pro	Thr	Ala	
	65				70					75					80	
aac	tgg	ctc	gcc	aac	gct	tca	gtg	atc	aat	ccc	ggg	gcg	att	tac	aga	288
Asn	Trp	Leu	Ala	Asn	Ala	Ser	Val	Ile	Asn	Pro	Gly	Ala	Ile	Tyr	Arg	
				85					90					95		
tgc	agg	atc	gga	aag	aat	ccc	ggc	cag	acg	tgc	gaa	cag	ctc	cag	ctg	336
Cys	Arg	Ile	Gly	Lys	Asn	Pro	Gly	Gln	Thr	Cys	Glu	Gln	Leu	Gln	Leu	
			100				105						110			
ggt	agc	cct	aat	gga	gaa	cct	tgt	gga	aag	act	tgt	ttg	gaa	gag	aga	384
Gly	Ser	Pro	Asn	Gly	Glu	Pro	Cys	Gly	Lys	Thr	Cys	Leu	Glu	Glu	Arg	
		115					120					125				
gac	aat	cag	tgg	ttg	ggg	gtc	aca	ctt	tcc	aga	cag	cca	gga	gaa	aat	432
Asp	Asn	Gln	Trp	Leu	Gly	Val	Thr	Leu	Ser	Arg	Gln	Pro	Gly	Glu	Asn	
	130					135					140					
gga	tcc	atc	gtg	act	tgt	ggg	cat	aga	tgg	aaa	aat	ata	ttt	tac	ata	480
Gly	Ser	Ile	Val	Thr	Cys	Gly	His	Arg	Trp	Lys	Asn	Ile	Phe	Tyr	Ile	
	145				150					155					160	
aag	aat	gaa	aat	aag	ctc	ccc	act	ggt	ggt	tgc	tat	gga	gtg	ccc	cct	528
Lys	Asn	Glu	Asn	Lys	Leu	Pro	Thr	Gly	Gly	Cys	Tyr	Gly	Val	Pro	Pro	
				165					170					175		
gat	tta	cga	aca	gaa	ctg	agt	aaa	aga	ata	gct	ccg	tgt	tat	caa	gat	576
Asp	Leu	Arg	Thr	Glu	Leu	Ser	Lys	Arg	Ile	Ala	Pro	Cys	Tyr	Gln	Asp	
			180					185					190			
tat	gtg	aaa	aaa	ttt	gga	gaa	aat	ttt	gca	tca	tgt	caa	gct	gga	ata	624
Tyr	Val	Lys	Lys	Phe	Gly	Glu	Asn	Phe	Ala	Ser	Cys	Gln	Ala	Gly	Ile	
		195					200					205				
tcc	agt	ttt	tac	aca	aag	gat	tta	att	gtg	atg	ggg	gcc	cca	gga	tca	672
Ser	Ser	Phe	Tyr	Thr	Lys	Asp	Leu	Ile	Val	Met	Gly	Ala	Pro	Gly	Ser	
	210					215					220					
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Ser	Tyr	Trp	Thr	Gly	Ser	Leu	Phe	Val	Tyr	Asn	Ile	Thr	Thr	Asn	Lys	
					230					235					240	
tac	aag	gct	ttt	tta	gac	aaa	caa	aat	caa	gta	aaa	ttt	gga	agt	tat	768
Tyr	Lys	Ala	Phe	Leu	Asp	Lys	Gln	Asn	Gln	Val	Lys	Phe	Gly	Ser	Tyr	
				245					250					255		
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Leu	Gly	Tyr	Ser	Val	Gly	Ala	Gly	His	Phe	Arg	Ser	Gln	His	Thr	Thr	
			260					265					270			
gaa	gta	gtc	gga	gga	gct	cct	caa	cat	gag	cag	att	ggt	aag	gca	tat	864
Glu	Val	Val	Gly	Gly	Ala	Pro	Gln	His	Glu	Gln	Ile	Gly	Lys	Ala	Tyr	
		275					280					285				
ata	ttc	agc	att	gat	gaa	aaa	gaa	cta	aat	atc	tta	cat	gaa	atg	aaa	912
Ile	Phe	Ser	Ile	Asp	Glu	Lys	Glu	Leu	Asn	Ile	Leu	His	Glu	Met	Lys	
	290					295					300					

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ctc Leu	aat Asn	gca Ala	gat Asp	ggc Gly 325	ttc Phe	tca Ser	gat Asp	ctg Leu	ctc Leu 330	gtg Val	gga Gly	gca Ala	ccc Pro	atg Met 335	cag Gln	1008
agc Ser	acc Thr	atc Ile	aga Arg 340	gag Glu	gaa Glu	gga Gly	aga Arg	gtg Val 345	ttt Phe	gtg Val	tac Tyr	atc Ile	aac Asn 350	tct Ser	ggc Gly	1056
tcg Ser	gga Gly	gca Ala 355	gta Val	atg Met	aat Asn	gca Ala	atg Met 360	gaa Glu	aca Thr	aac Asn	ctc Leu	gtt Val 365	gga Gly	agt Ser	gac Asp	1104
aaa Lys	tat Tyr 370	gct Ala	gca Ala	aga Arg	ttt Phe	ggg Gly 375	gaa Glu	tct Ser	ata Ile	gtt Val	aat Asn 380	ctt Leu	ggc Gly	gac Asp	att Ile	1152
gac Asp 385	aat Asn	gat Asp	ggc Gly	ttt Phe	gaa Glu 390	gat Asp	gtt Val	gct Ala	atc Ile	gga Gly 395	gct Ala	cca Pro	caa Gln	gaa Glu	gat Asp 400	1200
gac Asp	ttg Leu	caa Gln	ggt Gly	gct Ala 405	att Ile	tat Tyr	att Ile	tac Tyr	aat Asn 410	ggc Gly	cgt Arg	gca Ala	gat Asp	ggg Gly 415	atc Ile	1248
tcg Ser	tca Ser	acc Thr	ttc Phe 420	tca Ser	cag Gln	aga Arg	att Ile	gaa Glu 425	gga Gly	ctt Leu	cag Gln	atc Ile	agc Ser 430	aaa Lys	tcg Ser	1296
tta Leu	agt Ser	atg Met 435	ttt Phe	gga Gly	cag Gln	tct Ser	ata Ile 440	tca Ser	gga Gly	caa Gln	att Ile	gat Asp 445	gca Ala	gat Asp	aat Asn	1344
aat Asn	ggc Gly 450	tat Tyr	gta Val	gat Asp	gta Val	gca Ala 455	gtt Val	ggt Gly	gct Ala	ttt Phe	cgg Arg 460	tct Ser	gat Asp	tct Ser	gct Ala	1392
gtc Val 465	ttg Leu	cta Leu	agg Arg	aca Thr	aga Arg 470	cct Pro	gta Val	gta Val	att Ile	gtt Val 475	gac Asp	gct Ala	tct Ser	tta Leu	agc Ser 480	1440
cac His	cct Pro	gag Glu	tca Ser	gta Val 485	aat Asn	aga Arg	acg Thr	aaa Lys	ttt Phe 490	gac Asp	tgt Cys	gtt Val	gaa Glu	aat Asn 495	gga Gly	1488
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aag Lys	gaa Glu	gtt Val 515	cca Pro	ggt Gly	tac Tyr	att Ile	gtt Val 520	ttg Leu	ttt Phe	tat Tyr	aac Asn	atg Met 525	agt Ser	ttg Leu	gat Asp	1584
gtg Val	aac Asn 530	aga Arg	aag Lys	gca Ala	gag Glu	tct Ser 535	cca Pro	cca Pro	aga Arg	ttc Phe	tat Tyr 540	ttc Phe	tct Ser	tct Ser	aat Asn	1632
gga Gly 545	act Thr	tct Ser	gac Asp	gtg Val	att Ile 550	aca Thr	gga Gly	agc Ser	ata Ile	cag Gln 555	gtg Val	tcc Ser	agc Ser	aga Arg	gaa Glu 560	1680

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gct Ala	aac Asn	tgt Cys	aga Arg	aca Thr 565	cat His	caa Gln	gca Ala	ttt Phe	atg Met 570	cgg Arg	aaa Lys	gat Asp	gtg Val	cgg Arg 575	gac Asp	1728
atc Ile	ctc Leu	acc Thr	cca Pro 580	att Ile	cag Gln	att Ile	gaa Glu	gct Ala 585	gct Ala	tac Tyr	cac His	ctt Leu	ggg Gly 590	cct Pro	cat His	1776
gtc Val	atc Ile	agt Ser 595	aaa Lys	cga Arg	agt Ser	aca Thr	gag Glu 600	gaa Glu	ttc Phe	cca Pro	cca Pro	ctt Leu 605	cag Gln	cca Pro	att Ile	1824
ctt Leu	cag Gln 610	cag Gln	aag Lys	aaa Lys	gaa Glu	aaa Lys 615	gac Asp	ata Ile	atg Met	aaa Lys	aaa Lys 620	aca Thr	ata Ile	aac Asn	ttt Phe	1872
gca Ala 625	agg Arg	ttt Phe	tgt Cys	gcc Ala	cat His 630	gaa Glu	aat Asn	tgt Cys	tct Ser	gct Ala 635	gat Asp	tta Leu	cag Gln	gtt Val	tct Ser 640	1920
gca Ala	aag Lys	att Ile	ggg Gly	ttt Phe 645	ttg Leu	aag Lys	ccc Pro	cat His	gaa Glu 650	aat Asn	aaa Lys	aca Thr	tat Tyr	ctt Leu 655	gct Ala	1968
gtt Val	ggg Gly	agt Ser	atg Met 660	aag Lys	aca Thr	ttg Leu	atg Met	ttg Leu 665	aat Asn	gtg Val	tcc Ser	ttg Leu	ttt Phe 670	aat Asn	gct Ala	2016
gga Gly	gat Asp	gat Asp 675	gca Ala	tat Tyr	gaa Glu	acg Thr	act Thr 680	cta Leu	cat His	gtc Val	aaa Lys	cta Leu 685	ccc Pro	gtg Val	ggg Gly	2064
ctt Leu	tat Tyr 690	ttc Phe	att Ile	aag Lys	att Ile	tta Leu 695	gag Glu	ctg Leu	gaa Glu	gag Glu	aag Lys 700	caa Gln	ata Ile	aac Asn	tgt Cys	2112
gaa Glu 705	gtc Val	aca Thr	gat Asp	aac Asn	tct Ser 710	ggc Gly	gtg Val	gta Val	caa Gln	ctt Leu 715	gac Asp	tgc Cys	agt Ser	att Ile	ggc Gly 720	2160
tat Tyr	ata Ile	tat Tyr	gta Val	gat Asp 725	cat His	ctc Leu	tca Ser	agg Arg	ata Ile 730	gat Asp	att Ile	agc Ser	ttt Phe	ctc Leu 735	ctg Leu	2208
gat Asp	gtg Val	agc Ser	tca Ser 740	ctc Leu	agc Ser	aga Arg	gcg Ala	gaa Glu 745	gag Glu	gac Asp	ctc Leu	agt Ser	atc Ile 750	aca Thr	gtg Val	2256
cat His	gct Ala	acc Thr 755	tgt Cys	gaa Glu	aat Asn	gaa Glu	gag Glu 760	gaa Glu	atg Met	gac Asp	aat Asn	cta Leu 765	aag Lys	cac His	agc Ser	2304
aga Arg	gtg Val 770	act Thr	gta Val	gca Ala	ata Ile	cct Pro 775	tta Leu	aaa Lys	tat Tyr	gag Glu	gtt Val 780	aag Lys	ctg Leu	act Thr	gtt Val	2352
cat His 785	ggg Gly	ttt Phe	gta Val	aac Asn	cca Pro 790	act Thr	tca Ser	ttt Phe	gtg Val	tat Tyr 795	gga Gly	tca Ser	aat Asn	gat Asp	gaa Glu 800	2400
aat Asn	gag Glu	cct Pro	gaa Glu	acg Thr	tgc Cys	atg Met	gtg Val	gag Glu	aaa Lys	atg Met	aac Asn	tta Leu	act Thr	ttc Phe	cat His	2448

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810

805

815

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Val Ile Asn Thr Gly Asn Ser Met Ala Pro Asn Val Ser Val Glu Ile	
820 825 830	
atg gta cca aat tct ttt agc ccc caa act gat aag ctg ttc aac att	2544
Met Val Pro Asn Ser Phe Ser Pro Gln Thr Asp Lys Leu Phe Asn Ile	
835 840 845	
ttg gat gtc cag act act act gga gaa tgc cac ttt gaa aat tat caa	2592
Leu Asp Val Gln Thr Thr Thr Gly Glu Cys His Phe Glu Asn Tyr Gln	
850 855 860	
aga gtg tgt gca tta gag cag caa aag agt gca atg cag acc ttg aaa	2640
Arg Val Cys Ala Leu Glu Gln Gln Lys Ser Ala Met Gln Thr Leu Lys	
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ggc ata gtc cgg ttc ttg tcc aag act gat aag agg cta ttg tac tgc	2688
Gly Ile Val Arg Phe Leu Ser Lys Thr Asp Lys Arg Leu Leu Tyr Cys	
885 890 895	
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Ile Lys Ala Asp Pro His Cys Leu Asn Phe Leu Cys Asn Phe Gly Lys	
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atg gaa agt gga aaa gaa gcc agt gtt cat atc caa ctg gaa ggc cgg	2784
Met Glu Ser Gly Lys Glu Ala Ser Val His Ile Gln Leu Glu Gly Arg	
915 920 925	
cca tcc att tta gaa atg gat gag act tca gca ctc aag ttt gaa ata	2832
Pro Ser Ile Leu Glu Met Asp Glu Thr Ser Ala Leu Lys Phe Glu Ile	
930 935 940	
aga gca aca ggt ttt cca gag cca aat cca aga gta att gaa cta aac	2880
Arg Ala Thr Gly Phe Pro Glu Pro Asn Pro Arg Val Ile Glu Leu Asn	
945 950 955 960	
aag gat gag aat gtt gcg cat gtt cta ctg gaa gga cta cat cat caa	2928
Lys Asp Glu Asn Val Ala His Val Leu Leu Glu Gly Leu His His Gln	
965 970 975	
aga ccc aaa cgt tat ttc acg gat ccc gag ctgctggaag caggctcagc	2978
Arg Pro Lys Arg Tyr Phe Thr Asp Pro Glu	
980 985	
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Glu Pro Lys Ser Cys Asp	
990	
aaa act cac aca tgc cca ccg tgc cca ggtaagccag cccaggcctc	3380
Lys Thr His Thr Cys Pro Pro Cys Pro	
995 1000	
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agccgggtgc tgacacgtcc acctccatct ctctctcag cac ctg aac tcc tgg	3494
His Leu Asn Ser Trp	
1005	

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* Ser Pro Gly Pro Leu Arg Ser His Ala Trp Trp Trp Thr * Ala	
1025 1030 1035	
acg aag acc ctg agg tca agt tca act ggt acg tgg acg gcg tgg agg	3638
Thr Lys Thr Leu Arg Ser Ser Ser Thr Gly Thr Trp Thr Ala Trp Arg	
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Ser Arg Lys Pro Ser Pro Lys Pro Lys	
1100 1105	
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Gly Ser Pro Glu Asn His Arg Cys Thr Pro Cys	
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ccc cat ccc ggg atg agc tga cca aga acc agg tca gcc tga cct gcc	3986
Pro His Pro Gly Met Ser * Pro Arg Thr Arg Ser Ala * Pro Ala	
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Trp Ser Lys Ala Ser Ile Pro Ala Thr Ser Pro Trp Ser Gly Arg Ala	
1135 1140 1145	
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Met Gly Ser Arg Arg Thr Thr Thr Arg Pro Arg Leu Pro Cys Trp Ile	
1150 1155 1160 1165	
ccg acg gct cct tct tcc tct aca gca agc tca ccg tgg aca aga gca	4130
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1185 1190 1195	
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&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; fusion protein

&lt;221&gt; CDS

&lt;222&gt; (1)...(2193)

&lt;221&gt; CDS

&lt;222&gt; (2551)...(2595)

&lt;221&gt; CDS

&lt;222&gt; (2714)...(3043)

&lt;221&gt; CDS

&lt;222&gt; (3140)...(3463)

&lt;400&gt; 2

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1 5 10 15	
tgt gtg ttt gct caa aca gat gaa aat aga tgt tta aaa gca aat gcc	96
Cys Val Phe Ala Gln Thr Asp Glu Asn Arg Cys Leu Lys Ala Asn Ala	
20 25 30	
aaa tca tgt gga gaa tgt ata caa gca ggg cca aat tgt ggg tgg tgc	144
Lys Ser Cys Gly Glu Cys Ile Gln Ala Gly Pro Asn Cys Gly Trp Cys	
35 40 45	
aca aat tca aca ttt tta cag gaa gga atg cct act tct gca cga tgt	192
Thr Asn Ser Thr Phe Leu Gln Glu Gly Met Pro Thr Ser Ala Arg Cys	
50 55 60	
gat gat tta gaa gcc tta aaa aag aag ggt tgc cct cca gat gac ata	240
Asp Asp Leu Glu Ala Leu Lys Lys Lys Gly Cys Pro Pro Asp Asp Ile	
65 70 75 80	
gaa aat ccc aga ggc tcc aaa gat ata aag aaa aat aaa aat gta acc	288
Glu Asn Pro Arg Gly Ser Lys Asp Ile Lys Lys Asn Lys Asn Val Thr	
85 90 95	
aac cgt agc aaa gga aca gca gag aag ctc aag cca gag gat att cat	336
Asn Arg Ser Lys Gly Thr Ala Glu Lys Leu Lys Pro Glu Asp Ile His	
100 105 110	
cag atc caa cca cag cag ttg gtt ttg cga tta aga tca ggg gag cca	384
Gln Ile Gln Pro Gln Gln Leu Val Leu Arg Leu Arg Ser Gly Glu Pro	
115 120 125	
cag aca ttt aca tta aaa ttc aag aga gct gaa gac tat ccc att gac	432
Gln Thr Phe Thr Leu Lys Phe Lys Arg Ala Glu Asp Tyr Pro Ile Asp	
130 135 140	
ctc tac tac ctt atg gac ctg tct tat tca atg aaa gac gat ttg gag	480
Leu Tyr Tyr Leu Met Asp Leu Ser Tyr Ser Met Lys Asp Asp Leu Glu	
145 150 155 160	
aat gta aaa agt ctt gga aca gat ctg atg aat gaa atg agg agg att	528
Asn Val Lys Ser Leu Gly Thr Asp Leu Met Asn Glu Met Arg Arg Ile	
165 170 175	
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Ser	Glu 210	Gln	Asn	Cys	Thr	Thr 215	Pro	Phe	Ser	Tyr	Lys 220	Asn	Val	Leu	Ser		
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Val	Thr	Glu 340	Glu	Phe	Gln	Pro	Val	Tyr 345	Lys	Glu	Leu	Lys 350	Asn	Leu	Ile		
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Pro	Lys	Ser 355	Ala	Val	Gly	Thr	Leu 360	Ser	Ala	Asn	Ser	Ser 365	Asn	Val	Ile		
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Gln 370	Leu	Ile	Ile	Asp	Ala 375	Tyr	Asn	Ser	Leu	Ser	Ser 380	Glu	Val	Ile	Leu		
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Glu 385	Asn	Gly	Lys	Leu	Ser 390	Glu	Gly	Val	Thr	Ile 395	Ser	Tyr	Lys	Ser	Tyr 400		
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Cys	Lys	Asn	Gly 405	Val	Asn	Gly	Thr	Gly	Glu 410	Asn	Gly	Arg	Lys	Cys 415	Ser		
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aat Asn 545	gaa Glu	att Ile	tat Tyr	tct Ser	ggc Gly 550	aaa Lys	ttc Phe	tgc Cys	gag Glu	tgt Cys 555	gat Asp	aat Asn	ttc Phe	aac Asn	tgt Cys 560	1680
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gta Val	gaa Glu	agt Ser 675	cgg Arg	gac Asp	aaa Lys	tta Leu	ccc Pro 680	cag Gln	ccg Pro	gtc Val	caa Gln	cct Pro 685	gat Asp	cct Pro	gtg Val	2064

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 Tyr Ser Val Asn Gly Asn Asn Glu Val Met Val His Val Val Glu Asn  
 705 710 715 720

cca gag tgt ccc act ggt cca gag gat ccc gag ctgctggaag caggctcagc 2213  
 Pro Glu Cys Pro Thr Gly Pro Glu Asp Pro Glu  
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 Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val  
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 His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr  
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 Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly  
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aag gag tac aag tgc aag gtc tcc aac aaa gcc ctc cca gcc ccc atc 3019  
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 835 840 845

gag aaa acc atc tcc aaa gcc aaa ggtgggaccc gtgggggtgcg agggccacat 3073  
 Glu Lys Thr Ile Ser Lys Ala Lys  
 850 855

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 Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser  
 860 865 870

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ggc	ttc	tat	ccc	agc	gac	atc	gcc	gtg	gag	tgg	gag	agc	aat	ggg	cag	3277
Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	
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Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	
		905					910					915				
tcc	ttc	ttc	ctc	tac	agc	aag	ctc	acc	gtg	gac	aag	agc	agg	tgg	cag	3373
Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	
	920					925					930					
cag	ggg	aac	gtc	ttc	tca	tgc	tcc	gtg	atg	cat	gag	gct	ctg	cac	aac	3421
Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	
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cac	tac	acg	cag	aag	agc	ctc	tcc	ctg	tct	ccg	ggt	aaa	tga			3463
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 Gly Tyr Ala Val Gln Gln Phe Ile Asn Pro Lys Gly Asn Trp Leu Leu  
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Ala	Gln	Ile	Ile	Leu	Lys	Leu	Cys	Phe	Ser	Ala	Lys	Phe	Arg	Pro	Thr	
		675					680					685				
aag	caa	aac	aat	caa	gtg	gcc	att	gta	tat	aac	atc	aca	ctt	gat	gca	2112
Lys	Gln	Asn	Asn	Gln	Val	Ala	Ile	Val	Tyr	Asn	Ile	Thr	Leu	Asp	Ala	
	690					695					700					
gat	gga	ttt	tca	tcc	aga	gta	acc	tcc	agg	ggg	tta	ttt	aaa	gaa	aac	2160
Asp	Gly	Phe	Ser	Ser	Arg	Val	Thr	Ser	Arg	Gly	Leu	Phe	Lys	Glu	Asn	
705					710					715					720	
aat	gaa	agg	tgc	ctg	cag	aag	aat	atg	gta	gta	aat	caa	gca	cag	agt	2208
Asn	Glu	Arg	Cys	Leu	Gln	Lys	Asn	Met	Val	Val	Asn	Gln	Ala	Gln	Ser	
				725					730					735		
tgc	ccc	gag	cac	atc	att	tat	ata	cag	gag	ccc	tct	gat	gtt	gtc	aac	2256
Cys	Pro	Glu	His	Ile	Ile	Tyr	Ile	Gln	Glu	Pro	Ser	Asp	Val	Val	Asn	
			740					745					750			
tct	ttg	gat	ttg	cgt	gtg	gac	atc	agt	ctg	gaa	aac	cct	ggc	act	agc	2304
Ser	Leu	Asp	Leu	Arg	Val	Asp	Ile	Ser	Leu	Glu	Asn	Pro	Gly	Thr	Ser	
		755					760					765				
cct	gcc	ctt	gaa	gcc	tat	tct	gag	act	gcc	aag	gtc	ttc	agt	att	cct	2352
Pro	Ala	Leu	Glu	Ala	Tyr	Ser	Glu	Thr	Ala	Lys	Val	Phe	Ser	Ile	Pro	
	770					775					780					
ttc	cac	aaa	gac	tgt	ggg	gag	gat	gga	ctt	tgc	att	tct	gat	cta	gtc	2400
Phe	His	Lys	Asp	Cys	Gly	Glu	Asp	Gly	Leu	Cys	Ile	Ser	Asp	Leu	Val	
785					790					795					800	
cta	gat	gtc	cga	caa	ata	cca	gct	gct	caa	gaa	caa	ccc	ttt	att	gtc	2448
Leu	Asp	Val	Arg	Gln	Ile	Pro	Ala	Ala	Gln	Glu	Gln	Pro	Phe	Ile	Val	
				805					810					815		
agc	aac	caa	aac	aaa	agg	tta	aca	ttt	tca	gta	aca	ctg	aaa	aat	aaa	2496
Ser	Asn	Gln	Asn	Lys	Arg	Leu	Thr	Phe	Ser	Val	Thr	Leu	Lys	Asn	Lys	
			820					825					830			

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agg Arg	gaa Glu	agt Ser 835	gca Ala	tac Tyr	aac Asn	act Thr	gga Gly 840	att Ile	gtt Val	gtt Val	gat Asp	ttt Phe 845	tca Ser	gaa Glu	aac Asn	2544
ttg Leu	ttt Phe 850	ttt Phe	gca Ala	tca Ser	ttc Phe	tcc Ser 855	cta Leu	ccg Pro	gtt Val	gat Asp	ggg Gly 860	aca Thr	gaa Glu	gta Val	aca Thr	2592
tgc Cys 865	cag Gln	gtg Val	gct Ala	gca Ala	tct Ser 870	cag Gln	aag Lys	tct Ser	gtt Val	gcc Ala 875	tgc Cys	gat Asp	gta Val	ggc Gly	tac Tyr 880	2640
cct Pro	gct Ala	tta Leu	aag Lys	aga Arg 885	gaa Glu	caa Gln	cag Gln	gtg Val	act Thr 890	ttt Phe	act Thr	att Ile	aac Asn	ttt Phe 895	gac Asp	2688
ttc Phe	aat Asn	ctt Leu	caa Gln 900	aac Asn	ctt Leu	cag Gln	aat Asn	cag Gln 905	gcg Ala	tct Ser	ctc Leu	agt Ser	ttc Phe 910	caa Gln	gcc Ala	2736
tta Leu	agt Ser	gaa Glu 915	agc Ser	caa Gln	gaa Glu	gaa Glu	aac Asn 920	aag Lys	gct Ala	gat Asp	aat Asn	ttg Leu 925	gtc Val	aac Asn	ctc Leu	2784
aaa Lys	att Ile 930	cct Pro	ctc Leu	ctg Leu	tat Tyr	gat Asp 935	gct Ala	gaa Glu	att Ile	cac His	tta Leu 940	aca Thr	aga Arg	tct Ser	acc Thr	2832
aac Asn 945	ata Ile	aat Asn	ttt Phe	tat Tyr	gaa Glu 950	atc Ile	tct Ser	tcg Ser	gat Asp	ggg Gly 955	aat Asn	gtt Val	cct Pro	tca Ser	atc Ile 960	2880
gtg Val	cac His	agt Ser	ttt Phe	gaa Glu 965	gat Asp	gtt Val	ggg Gly	cca Pro	aaa Lys 970	ttc Phe	atc Ile	ttc Phe	tcc Ser	ctg Leu 975	aag Lys	2928
gta Val	aca Thr	aca Thr	gga Gly 980	agt Ser	gtt Val	cca Pro	gta Val	agc Ser 985	atg Met	gca Ala	act Thr	gta Val	atc Ile 990	atc Ile	cac His	2976
atc Ile	cct Pro	cag Gln 995	tat Tyr	acc Thr	aaa Lys	gaa Glu	aag Lys 1000	aac Asn	cca Pro	ctg Leu	atg Met	tac Tyr 1005	cta Leu	act Thr	ggg Gly	3024
gtg Val	caa Gln 1010	aca Thr	gac Asp	aag Lys	gct Ala	ggg Gly 1015	gac Asp	atc Ile	agt Ser	tgt Cys	aat Asn 1020	gca Ala	gat Asp	atc Ile	aat Asn	3072
cca Pro 1025	ctg Leu	aaa Lys	ata Ile	gga Gly	caa Gln 1030	aca Thr	tct Ser	tct Ser	tct Ser	gta Val 1035	tct Ser	ttc Phe	aaa Lys	agt Ser	gaa Glu 1040	3120
aat Asn	ttc Phe	agg Arg	cac His 1045	acc Thr	aaa Lys	gaa Glu	ttg Leu	aac Asn	tgc Cys 1050	aga Arg	act Thr	gct Ala	tcc Ser	tgt Cys 1055	agt Ser	3168
aat Asn	gtt Val	acc Thr	tgc Cys 1060	tgg Trp	ttg Leu	aaa Lys	gac Asp	gtt Val 1065	cac His	atg Met	aaa Lys	gga Gly	gaa Glu 1070	tac Tyr	ttt Phe	3216
gtt Val	aat Asn	gtg Val	act Thr	acc Thr	aga Arg	att Ile	tgg Trp	aac Asn	ggg Gly	act Thr	ttc Phe	gca Ala	tca Ser	tca Ser	acg Thr	3264

## 1102-98.TXT

1075	1080	1085	
ttc cag aca gta cag cta acg gca gct gca gaa atc aac acc tat aac			3312
Phe Gln Thr Val Gln Leu Thr Ala Ala Ala Glu Ile Asn Thr Tyr Asn			
1090	1095	1100	
cct gag ata tat gtg att gaa gat aac act gtt acg att ccc ctg atg			3360
Pro Glu Ile Tyr Val Ile Glu Asp Asn Thr Val Thr Ile Pro Leu Met			
1105	1110	1115	1120
ata atg aaa cct gat gag aaa gcc gaa gta cca aca gat ccc gag			3405
Ile Met Lys Pro Asp Glu Lys Ala Glu Val Pro Thr Asp Pro Glu			
1125	1130	1135	
ctgctggaag caggctcagc gctcctgcct ggacgcattc cggctatgca gccccagtcc			3465
agggcagcaa ggcaggcccc gtctgcctct tcacccggag cctctgccc cccactcat			3525
gctcagggag agggctcttct ggctttttcc caggctctgg gcaggcacag gctaggtgcc			3585
cctaaccag gccctgcaca caaaggggca ggtgctgggc tcagacctgc caagagccat			3645
atccgggagg accctgcccc tgacctaaagc ccaccccaaa ggccaaactc tccactccct			3705
cagctcggac accttctctc ctcccagatt ccagtaactc ccaatcttct ctctgca gag			3765
			Glu
ccc aaa tct tgt gac aaa act cac aca tgc cca ccg tgc cca			3807
Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro			
1140	1145	1150	
ggtaagccag cccaggcctc gccctccagc tcaaggcggg acagggtgcc tagagtagcc			3867
tgcatccagg gacaggcccc agccgggtgc tgacacgtcc acctccatct ctctctca			3925
gca cct gaa ctc ctg ggg gga ccg tca gtc ttc ctc ttc ccc cca aaa			3973
Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys			
1155	1160	1165	
ccc aag gac acc ctc atg atc tcc cgg acc cct gag gtc aca tgc gtg			4021
Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val			
1170	1175	1180	
gtg gtg gac gtg agc cac gaa gac cct gag gtc aag ttc aac tgg tac			4069
Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr			
1185	1190	1195	
gtg gac ggc gtg gag gtg cat aat gcc aag aca aag ccg cgg gag gag			4117
Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu			
1200	1205	1210	
cag tac aac agc acg tac cgg gtg gtc agc gtc ctc acc gtc ctg cac			4165
Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His			
1215	1220	1225	1230
cag gac tgg ctg aat ggc aag gag tac aag tgc aag gtc tcc aac aaa			4213
Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys			
1235	1240	1245	
gcc ctc cca gcc ccc atc gag aaa acc atc tcc aaa gcc aaa			4255
Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys			
1250	1255	1260	
ggtgggaccc gtgggggtgcg agggccacat ggacagaggc cggctcggcc caccctctgc			4315
cctgagagtg accgctgtac caacctctgt cctaca ggg cag ccc cga gaa cca			4369
	Gly	Gln	Pro
		Arg	Glu
			Pro
			1265
cag gtg tac acc ctg ccc cca tcc cgg gat gag ctg acc aag aac cag			4417

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Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys	Asn	Gln	
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gtc	agc	ctg	acc	tgc	ctg	gtc	aaa	ggc	ttc	tat	ccc	agc	gac	atc	gcc	4465
Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	
		1285					1290					1295				
gtg	gag	tgg	gag	agc	aat	ggg	cag	ccg	gag	aac	aac	tac	aag	acc	acg	4513
Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	
	1300					1305					1310					
cct	ccc	gtg	ctg	gat	tcc	gac	ggc	tcc	ttc	ttc	ctc	tac	agc	aag	ctc	4561
Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	
1315					1320				1325						1330	
acc	gtg	gac	aag	agc	agg	tgg	cag	cag	ggg	aac	gtc	ttc	tca	tgc	tcc	4609
Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	
				1335					1340					1345		
gtg	atg	cat	gag	gct	ctg	cac	aac	cac	tac	acg	cag	aag	agc	ctc	tcc	4657
Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	
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Leu	Ser	Pro	Gly	Lys	*											
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		35					40					45			
Leu	Tyr	Gln	Gly	Pro	His	Asn	Thr	Leu	Phe	Gly	Tyr	Ser	Val	Val	Leu
	50					55					60				
His	Ser	His	Gly	Ala	Asn	Arg	Trp	Leu	Leu	Val	Gly	Ala	Pro	Thr	Ala
	65				70					75					80
Asn	Trp	Leu	Ala	Asn	Ala	Ser	Val	Ile	Asn	Pro	Gly	Ala	Ile	Tyr	Arg
				85					90					95	
Cys	Arg	Ile	Gly	Lys	Asn	Pro	Gly	Gln	Thr	Cys	Glu	Gln	Leu	Gln	Leu
			100					105					110		
Gly	Ser	Pro	Asn	Gly	Glu	Pro	Cys	Gly	Lys	Thr	Cys	Leu	Glu	Glu	Arg
		115					120					125			
Asp	Asn	Gln	Trp	Leu	Gly	Val	Thr	Leu	Ser	Arg	Gln	Pro	Gly	Glu	Asn
	130					135					140				
Gly	Ser	Ile	Val	Thr	Cys	Gly	His	Arg	Trp	Lys	Asn	Ile	Phe	Tyr	Ile
	145				150					155					160
Lys	Asn	Glu	Asn	Lys	Leu	Pro	Thr	Gly	Gly	Cys	Tyr	Gly	Val	Pro	Pro
				165					170					175	
Asp	Leu	Arg	Thr	Glu	Leu	Ser	Lys	Arg	Ile	Ala	Pro	Cys	Tyr	Gln	Asp
			180					185						190	
Tyr	Val	Lys	Lys	Phe	Gly	Glu	Asn	Phe	Ala	Ser	Cys	Gln	Ala	Gly	Ile
		195					200					205			
Ser	Ser	Phe	Tyr	Thr	Lys	Asp	Leu	Ile	Val	Met	Gly	Ala	Pro	Gly	Ser
	210					215					220				
Ser	Tyr	Trp	Thr	Gly	Ser	Leu	Phe	Val	Tyr	Asn	Ile	Thr	Thr	Asn	Lys
	225				230					235					240
Tyr	Lys	Ala	Phe	Leu	Asp	Lys	Gln	Asn	Gln	Val	Lys	Phe	Gly	Ser	Tyr
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Leu	Gly	Tyr	Ser	Val	Gly	Ala	Gly	His	Phe	Arg	Ser	Gln	His	Thr	Thr
			260					265					270		
Glu	Val	Val	Gly	Gly	Ala	Pro	Gln	His	Glu	Gln	Ile	Gly	Lys	Ala	Tyr
		275					280					285			
Ile	Phe	Ser	Ile	Asp	Glu	Lys	Glu	Leu	Asn	Ile	Leu	His	Glu	Met	Lys
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Leu	Asn	Ala	Asp	Gly	Phe	Ser	Asp	Leu	Leu	Val	Gly	Ala	Pro	Met	Gln
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Ser	Thr	Ile	Arg	Glu	Glu	Gly	Arg	Val	Phe	Val	Tyr	Ile	Asn	Ser	Gly
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		355					360					365			
Lys	Tyr	Ala	Ala	Arg	Phe	Gly	Glu	Ser	Ile	Val	Asn	Leu	Gly	Asp	Ile
	370					375					380				
Asp	Asn	Asp	Gly	Phe	Glu	Asp	Val	Ala	Ile	Gly	Ala	Pro	Gln	Glu	Asp
	385				390					395					400
Asp	Leu	Gln	Gly	Ala	Ile	Tyr	Ile	Tyr	Asn	Gly	Arg	Ala	Asp	Gly	Ile
				405					410					415	
Ser	Ser	Thr	Phe	Ser	Gln	Arg	Ile	Glu	Gly	Leu	Gln	Ile	Ser	Lys	Ser
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His	Pro	Glu	Ser	Val	Asn	Arg	Thr	Lys	Phe	Asp	Cys	Val	Glu	Asn	Gly
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Trp	Pro	Ser	Val	Cys	Ile	Asp	Leu	Thr	Leu	Cys	Phe	Ser	Tyr	Lys	Gly
			500					505					510		
Lys	Glu	Val	Pro	Gly	Tyr	Ile	Val	Leu	Phe	Tyr	Asn	Met	Ser	Leu	Asp
		515					520					525			
Val	Asn	Arg	Lys	Ala	Glu	Ser	Pro	Pro	Arg	Phe	Tyr	Phe	Ser	Ser	Asn

## 1102-98.TXT

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545	Ala	Asn	Cys	Arg	Thr	His	550	Gln	Ala	Phe	Met	Arg	555	Lys	Asp	Val	Arg	Asp
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	Leu	Gln	Gln	Lys	610	Lys	Glu	615	Asn	Cys	Ser	Ala	620	Asp	Leu	Gln	Val	
	Ala	Arg	Phe	Cys	625	Ala	His	630	Glu	Asn	Cys	Ser	635	Asn	Lys	Thr	Tyr	
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	Asp	Val	Ser	Ser	740	Leu	Ser	Arg	Ala	Glu	Glu	Asp	745	Leu	Ser	Ile	Thr	
	His	Ala	Thr	Cys	755	Glu	Asn	Glu	Glu	Glu	Met	Asp	760	Asn	Leu	Lys	His	
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	Ile	Lys	Ala	Asp	900	Pro	His	Cys	Leu	Asn	Phe	Leu	905	Cys	Asn	Phe	Gly	
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	Lys	Asp	Glu	Asn	965	Val	Ala	His	Val	Leu	Leu	Glu	955	Gly	Leu	His	His	
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	Lys	Thr	His	Thr	995	Cys	Pro	Pro	Cys	Pro	Ala	Pro	985	Glu	Leu	Leu	Gly	
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							1030						1035				Glu	

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1045 1050 1055  
Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg  
1060 1065 1070  
Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys  
1075 1080 1085  
Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu  
1090 1095 1100  
Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr  
1105 1110 1115 1120  
Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu  
1125 1130 1135  
Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp  
1140 1145 1150  
Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val  
1155 1160 1165  
Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp  
1170 1175 1180  
Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His  
1185 1190 1195 1200  
Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro  
1205 1210 1215  
Gly Lys

<210> 33  
<211> 963  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> fusion protein

<400> 33

Met Asn Leu Gln Pro Ile Phe Trp Ile Gly Leu Ile Ser Ser Val Cys  
1 5 10 15  
Cys Val Phe Ala Gln Thr Asp Glu Asn Arg Cys Leu Lys Ala Asn Ala  
20 25 30  
Lys Ser Cys Gly Glu Cys Ile Gln Ala Gly Pro Asn Cys Gly Trp Cys  
35 40 45  
Thr Asn Ser Thr Phe Leu Gln Glu Gly Met Pro Thr Ser Ala Arg Cys  
50 55 60  
Asp Asp Leu Glu Ala Leu Lys Lys Lys Gly Cys Pro Pro Asp Asp Ile  
65 70 75 80  
Glu Asn Pro Arg Gly Ser Lys Asp Ile Lys Lys Asn Lys Asn Val Thr  
85 90 95  
Asn Arg Ser Lys Gly Thr Ala Glu Lys Leu Lys Pro Glu Asp Ile His  
100 105 110  
Gln Ile Gln Pro Gln Gln Leu Val Leu Arg Leu Arg Ser Gly Glu Pro  
115 120 125  
Gln Thr Phe Thr Leu Lys Phe Lys Arg Ala Glu Asp Tyr Pro Ile Asp  
130 135 140  
Leu Tyr Tyr Leu Met Asp Leu Ser Tyr Ser Met Lys Asp Asp Leu Glu  
145 150 155 160  
Asn Val Lys Ser Leu Gly Thr Asp Leu Met Asn Glu Met Arg Arg Ile  
165 170 175  
Thr Ser Asp Phe Arg Ile Gly Phe Gly Ser Phe Val Glu Lys Thr Val  
180 185 190  
Met Pro Tyr Ile Ser Thr Thr Pro Ala Lys Leu Arg Asn Pro Cys Thr  
195 200 205  
Ser Glu Gln Asn Cys Thr Thr Pro Phe Ser Tyr Lys Asn Val Leu Ser  
210 215 220

## 1102-98.TXT

Leu 225	Thr	Asn	Lys	Gly	Glu 230	Val	Phe	Asn	Glu 235	Leu 235	Val	Gly	Lys	Gln	Arg 240
Ile	Ser	Gly	Asn 245	Leu 245	Asp	Ser	Pro	Glu	Gly 250	Gly	Phe	Asp	Ala	Ile 255	Met
Gln	Val	Ala	Val 260	Cys	Gly	Ser	Leu	Ile 265	Gly	Trp	Arg	Asn	Val 270	Thr	Arg
Leu	Leu	Val 275	Phe	Ser	Thr	Asp	Ala 280	Gly	Phe	His	Phe	Ala 285	Gly	Asp	Gly
Lys	Leu 290	Gly	Gly	Ile	Val	Leu 295	Pro	Asn	Asp	Gly	Gln 300	Cys	His	Leu	Glu
Asn 305	Asn	Met	Tyr	Thr	Met 310	Ser	His	Tyr	Tyr	Asp 315	Tyr	Pro	Ser	Ile	Ala 320
His	Leu	Val	Gln	Lys 325	Leu	Ser	Glu	Asn	Asn 330	Ile	Gln	Thr	Ile	Phe 335	Ala
Val	Thr	Glu	Glu 340	Phe	Gln	Pro	Val	Tyr 345	Lys	Glu	Leu	Lys	Asn 350	Leu	Ile
Pro	Lys	Ser 355	Ala	Val	Gly	Thr	Leu 360	Ser	Ala	Asn	Ser	Ser 365	Asn	Val	Ile
Gln	Leu 370	Ile	Ile	Asp	Ala	Tyr 375	Asn	Ser	Leu	Ser	Ser 380	Glu	Val	Ile	Leu
Glu 385	Asn	Gly	Lys	Leu	Ser 390	Glu	Gly	Val	Thr	Ile 395	Ser	Tyr	Lys	Ser	Tyr 400
Cys	Lys	Asn	Gly	Val 405	Asn	Gly	Thr	Gly	Glu 410	Asn	Gly	Arg	Lys	Cys 415	Ser
Asn	Ile	Ser	Ile 420	Gly	Asp	Glu	Val	Gln 425	Phe	Glu	Ile	Ser	Ile 430	Thr	Ser
Asn	Lys	Cys 435	Pro	Lys	Lys	Asp	Ser 440	Asp	Ser	Phe	Lys	Ile 445	Arg	Pro	Leu
Gly	Phe 450	Thr	Glu	Glu	Val	Glu 455	Val	Ile	Leu	Gln	Tyr 460	Ile	Cys	Glu	Cys
Glu 465	Cys	Gln	Ser	Glu	Gly 470	Ile	Pro	Glu	Ser	Pro 475	Lys	Cys	His	Glu	Gly 480
Asn	Gly	Thr	Phe	Glu 485	Cys	Gly	Ala	Cys	Arg 490	Cys	Asn	Glu	Gly	Arg 495	Val
Gly	Arg	His	Cys 500	Glu	Cys	Ser	Thr	Asp 505	Glu	Val	Asn	Ser	Glu 510	Asp	Met
Asp	Ala	Tyr 515	Cys	Arg	Lys	Glu	Asn 520	Ser	Ser	Glu	Ile	Cys 525	Ser	Asn	Asn
Gly	Glu 530	Cys	Val	Cys	Gly	Gln 535	Cys	Val	Cys	Arg	Lys 540	Arg	Asp	Asn	Thr
Asn 545	Glu	Ile	Tyr	Ser	Gly 550	Lys	Phe	Cys	Glu	Cys 555	Asp	Asn	Phe	Asn	Cys 560
Asp	Arg	Ser	Asn 565	Gly	Leu	Ile	Cys	Gly	Gly 570	Asn	Gly	Val	Cys	Lys 575	Cys
Arg	Val	Cys	Glu 580	Cys	Asn	Pro	Asn	Tyr 585	Thr	Gly	Ser	Ala	Cys 590	Asp	Cys
Ser	Leu	Asp 595	Thr	Ser	Thr	Cys	Glu 600	Ala	Ser	Asn	Gly	Gln 605	Ile	Cys	Asn
Gly	Arg 610	Gly	Ile	Cys	Glu	Cys	Gly 615	Val	Cys	Lys	Cys 620	Thr	Asp	Pro	Lys
Phe 625	Gln	Gly	Gln	Thr	Cys 630	Glu	Met	Cys	Gln	Thr 635	Cys	Leu	Gly	Val	Cys 640
Ala	Glu	His	Lys	Glu 645	Cys	Val	Gln	Cys	Arg 650	Ala	Phe	Asn	Lys	Gly 655	Glu
Lys	Lys	Asp	Thr 660	Cys	Thr	Gln	Glu	Cys 665	Ser	Tyr	Phe	Asn	Ile 670	Thr	Lys
Val	Glu	Ser 675	Arg	Asp	Lys	Leu	Pro 680	Gln	Pro	Val	Gln	Pro 685	Asp	Pro	Val
Ser	His 690	Cys	Lys	Glu	Lys	Asp 695	Val	Asp	Asp	Cys	Trp 700	Phe	Tyr	Phe	Thr
Tyr 705	Ser	Val	Asn	Gly	Asn 710	Glu	Val	Met	Val 715	His	Val	Val	Glu	Asn 720	
Pro	Glu	Cys	Pro	Thr	Gly	Pro	Glu	Asp	Pro	Glu	Glu	Pro	Lys	Ser	Cys

## 1102-98.TXT

```

      725      730      735
Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly
      740      745      750
Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met
      755      760      765
Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His
      770      775      780
Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val
      785      790      795
His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr
      805      810      815
Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
      820      825      830
Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile
      835      840      845
Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
      850      855      860
Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser
      865      870      875
Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu
      885      890      895
Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro
      900      905      910
Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val
      915      920      925
Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met
      930      935      940
His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser
      945      950      955
Pro Gly Lys

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&lt;210&gt; 34

&lt;211&gt; 1367

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; fusion protein

&lt;400&gt; 34

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Met Gly Pro Glu Arg Thr Gly Ala Ala Pro Leu Pro Leu Leu Leu Val
 1      5      10      15
Leu Ala Leu Ser Gln Gly Ile Leu Asn Cys Cys Leu Ala Tyr Asn Val
      20      25      30
Gly Leu Pro Glu Ala Lys Ile Phe Ser Gly Pro Ser Ser Glu Gln Phe
      35      40      45
Gly Tyr Ala Val Gln Gln Phe Ile Asn Pro Lys Gly Asn Trp Leu Leu
      50      55      60
Val Gly Ser Pro Trp Ser Gly Phe Pro Glu Asn Arg Met Gly Asp Val
      65      70      75      80
Tyr Lys Cys Pro Val Asp Leu Ser Thr Ala Thr Cys Glu Lys Leu Asn
      85      90      95
Leu Gln Thr Ser Thr Ser Ile Pro Asn Val Thr Glu Met Lys Thr Asn
      100      105      110
Met Ser Leu Gly Leu Ile Leu Thr Arg Asn Met Gly Thr Gly Gly Phe
      115      120      125
Leu Thr Cys Gly Pro Leu Trp Ala Gln Gln Cys Gly Asn Gln Tyr Tyr
      130      135      140
Thr Thr Gly Val Cys Ser Asp Ile Ser Pro Asp Phe Gln Leu Ser Ala
      145      150      155      160
Ser Phe Ser Pro Ala Thr Gln Pro Cys Pro Ser Leu Ile Asp Val Val

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## 1102-98.TXT

Val	Val	Cys	Asp	165	Ser	Asn	Ser	Ile	170	Tyr	Pro	Trp	Asp	175	Val	Lys
Asn	Phe	Leu	Glu	180	Lys	Phe	Val	Gln	185	Gly	Leu	Asp	Ile	190	Pro	Lys
Thr	Gln	Val	Gly	195	Leu	Ile	Gln	Tyr	200	Ala	Asn	Asn	Pro	205	Arg	Phe
Asn	Leu	Asn	Thr	210	Tyr	Lys	Thr	Lys	215	Glu	Glu	Met	Ile	220	Val	Ser
225	Gln	Thr	Ser	230	Tyr	Gly	Gly	Asp	235	Leu	Thr	Asn	Thr	240	Phe	Ile
Gln	Tyr	Ala	Arg	245	Lys	Tyr	Ala	Tyr	250	Ala	Ala	Ser	Gly	255	Gly	Arg
Ser	Ala	Thr	Lys	260	Val	Met	Val	Val	265	Thr	Asp	Gly	Glu	270	Ser	His
Gly	Ser	Met	Leu	275	Lys	Ala	Val	Ile	280	Asp	Gln	Cys	Asn	285	His	Asn
Leu	Arg	Phe	Gly	290	Ile	Ala	Val	Leu	295	Gly	Tyr	Leu	Asn	300	Arg	Ala
305	Asp	Thr	Lys	310	Asn	Ile	Lys	Glu	315	Ile	Lys	Ala	Ile	320	Ala	Leu
Thr	Glu	Arg	Tyr	325	Phe	Phe	Asn	Val	330	Ser	Asp	Glu	Ala	335	Ala	Pro
Lys	Ala	Gly	Thr	340	Leu	Gly	Glu	Gln	345	Ile	Phe	Ser	Ile	350	Glu	Val
Gln	Gly	Gly	Asp	355	Asn	Phe	Gln	Met	360	Glu	Met	Ser	Gln	365	Val	Phe
370	Ala	Asp	Tyr	375	Ser	Ser	Gln	Asn	380	Ile	Leu	Met	Leu	385	Gly	Val
385	Ala	Phe	Gly	390	Trp	Ser	Gly	Thr	395	Ile	Val	Gln	Lys	400	Thr	His
Leu	Ile	Phe	Pro	405	Lys	Gln	Ala	Phe	410	Gln	Ile	Leu	Gln	415	Asp	Asn
His	Ser	Ser	Tyr	420	Leu	Gly	Tyr	Ser	425	Val	Ala	Ala	Ile	430	Ser	Gly
Ser	Thr	His	Phe	435	Val	Ala	Gly	Ala	440	Pro	Arg	Ala	Asn	445	Tyr	Thr
Ile	Val	Leu	Tyr	450	Ser	Val	Asn	Glu	455	Asn	Gly	Asn	Ile	460	Thr	Gln
465	Ala	His	Arg	470	Gly	Asp	Gln	Ile	475	Ser	Tyr	Phe	Gly	480	Ser	Val
Ala	Ser	Val	Asp	485	Val	Asp	Lys	Asp	490	Thr	Thr	Asp	Val	495	Leu	Cys
Ser	Val	Asp	Val	500	Asp	Lys	Asp	Thr	505	Ile	Thr	Asp	Val	510	Leu	Gly
Ala	Pro	Met	Tyr	515	Met	Ser	Asp	Leu	520	Lys	Lys	Glu	Glu	525	Arg	Tyr
Leu	Phe	Thr	Ile	530	Lys	Lys	Gly	Ile	535	Leu	Gly	Gln	His	540	Gln	Glu
Gly	Pro	Glu	Gly	545	Ile	Glu	Asn	Thr	550	Arg	Phe	Gly	Ser	555	Ala	Ala
Leu	Ser	Asp	Ile	560	Asn	Met	Asp	Gly	565	Phe	Asn	Asp	Val	570	Ile	Ser
Pro	Leu	Glu	Asn	575	Gln	Asn	Ser	Gly	580	Ala	Val	Tyr	Ile	585	Tyr	His
Gln	Gly	Thr	Ile	590	Arg	Thr	Lys	Tyr	595	Ser	Gln	Lys	Ile	600	Leu	Ser
Gly	Ala	Phe	Arg	605	Ser	His	Leu	Gln	610	Tyr	Phe	Gly	Arg	615	Ser	Gly
Tyr	Gly	Asp	Leu	620	Asn	Gly	Asp	Ser	625	Ile	Thr	Asp	Val	630	Ser	Ala
625	Phe	Gly	Gln	635	Val	Gln	Leu	Trp	640	Ser	Gln	Ser	Ile	645	Ala	Val
Ile	Glu	Ala	Ser	650	Phe	Thr	Pro	Glu	655	Lys	Ile	Thr	Leu	660	Val	Asn
			660						665					670		

## 1102-98.TXT

Ala Gln Ile Ile Leu Lys Leu Cys Phe Ser Ala Lys Phe Arg Pro Thr  
 675 680  
 Lys Gln Asn Asn Gln Val Ala Ile Val Tyr Asn Ile Thr Leu Asp Ala  
 690 695 700  
 Asp Gly Phe Ser Ser Arg Val Thr Ser Arg Gly Leu Phe Lys Glu Asn  
 705 710 715 720  
 Asn Glu Arg Cys Leu Gln Lys Asn Met Val Val Asn Gln Ala Gln Ser  
 725 730 735  
 Cys Pro Glu His Ile Ile Tyr Ile Gln Glu Pro Ser Asp Val Val Asn  
 740 745 750  
 Ser Leu Asp Leu Arg Val Asp Ile Ser Leu Glu Asn Pro Gly Thr Ser  
 755 760 765  
 Pro Ala Leu Glu Ala Tyr Ser Glu Thr Ala Lys Val Phe Ser Ile Pro  
 770 775 780  
 Phe His Lys Asp Cys Gly Glu Asp Gly Leu Cys Ile Ser Asp Leu Val  
 785 790 795 800  
 Leu Asp Val Arg Gln Ile Pro Ala Ala Gln Glu Gln Pro Phe Ile Val  
 805 810 815  
 Ser Asn Gln Asn Lys Arg Leu Thr Phe Ser Val Thr Leu Lys Asn Lys  
 820 825 830  
 Arg Glu Ser Ala Tyr Asn Thr Gly Ile Val Val Asp Phe Ser Glu Asn  
 835 840 845  
 Leu Phe Phe Ala Ser Phe Ser Leu Pro Val Asp Gly Thr Glu Val Thr  
 850 855 860  
 Cys Gln Val Ala Ala Ser Gln Lys Ser Val Ala Cys Asp Val Gly Tyr  
 865 870 875 880  
 Pro Ala Leu Lys Arg Glu Gln Gln Val Thr Phe Thr Ile Asn Phe Asp  
 885 890 895 900  
 Phe Asn Leu Gln Asn Leu Gln Asn Gln Ala Ser Leu Ser Phe Gln Ala  
 900 905 910  
 Leu Ser Glu Ser Gln Glu Glu Asn Lys Ala Asp Asn Leu Val Asn Leu  
 915 920 925  
 Lys Ile Pro Leu Leu Tyr Asp Ala Glu Ile His Leu Thr Arg Ser Thr  
 930 935 940  
 Asn Ile Asn Phe Tyr Glu Ile Ser Ser Asp Gly Asn Val Pro Ser Ile  
 945 950 955 960  
 Val His Ser Phe Glu Asp Val Gly Pro Lys Phe Ile Phe Ser Leu Lys  
 965 970 975 980  
 Val Thr Thr Gly Ser Val Pro Val Ser Met Ala Thr Val Ile Ile His  
 980 985 990  
 Ile Pro Gln Tyr Thr Lys Glu Lys Asn Pro Leu Met Tyr Leu Thr Gly  
 995 1000 1005  
 Val Gln Thr Asp Lys Ala Gly Asp Ile Ser Cys Asn Ala Asp Ile Asn  
 1010 1015 1020  
 Pro Leu Lys Ile Gly Gln Thr Ser Ser Ser Val Ser Phe Lys Ser Glu  
 1025 1030 1035 1040  
 Asn Phe Arg His Thr Lys Glu Leu Asn Cys Arg Thr Ala Ser Cys Ser  
 1045 1050 1055  
 Asn Val Thr Cys Trp Leu Lys Asp Val His Met Lys Gly Glu Tyr Phe  
 1060 1065 1070  
 Val Asn Val Thr Thr Arg Ile Trp Asn Gly Thr Phe Ala Ser Ser Thr  
 1075 1080 1085  
 Phe Gln Thr Val Gln Leu Thr Ala Ala Ala Glu Ile Asn Thr Tyr Asn  
 1090 1095 1100  
 Pro Glu Ile Tyr Val Ile Glu Asp Asn Thr Val Thr Ile Pro Leu Met  
 1105 1110 1115 1120  
 Ile Met Lys Pro Asp Glu Lys Ala Glu Val Pro Thr Asp Pro Glu Glu  
 1125 1130 1135  
 Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro  
 1140 1145 1150  
 Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys  
 1155 1160 1165  
 Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val

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1170	1175	1180
Asp Val Ser His Glu	Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp	
1185	1190	1195
Gly Val Glu Val His Asn Ala Lys Thr	Lys Pro Arg Glu Glu Gln Tyr	1200
1205	1210	1215
Asn Ser Thr Tyr Arg Val Val Ser Val	Leu Thr Val Leu His Gln Asp	
1220	1225	1230
Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu		
1235	1240	1245
Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg		
1250	1255	1260
Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys		
1265	1270	1275
Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp		
1285	1290	1295
Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys		
1300	1305	1310
Thr Thr Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser		
1315	1320	1325
Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser		
1330	1335	1340
Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser		
1345	1350	1355
Leu Ser Leu Ser Pro Gly Lys		1360
1365		